



DNA
MATHEMATICS
Success Story

DNA Mathematics expert Juli K. Dixon gives a presentation to school staff.

Saint Paul Public Schools

SAINT PAUL, MINNESOTA

Saint Paul Public Schools transformed its mathematics practices to address the needs of its diverse learners through DNA Mathematics and the TQE process.

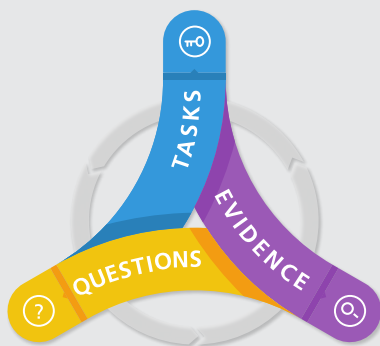
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► DEMOGRAPHICS

- **37,010** students
- **16%** Special education
- **29%** English language learners
- **14%** Hispanic
- **26%** African American
- **21%** Caucasian
- **7%** Multiracial
- **31%** Asian
- **<1%** Native Hawaiian/Pacific Islander
- **1%** Native American

Saint Paul Public Schools is located in Saint Paul, Minnesota, a city of approximately 308,000 residents.



The TQE (tasks, questions, evidence) Process

► CHALLENGE

When Ishmael Robinson started his role as Saint Paul Public Schools' K–12 math supervisor, he was tasked with arranging professional development for mathematics teachers in his district.

Of Saint Paul's roughly 37,000 students, close to 30 percent were English learners, and another 16 percent required special education. Saint Paul Public Schools would need a comprehensive PD solution that empowered its staff to address the mathematics needs of diverse learners.

"The mathematics culture was very procedural and disjointed," Robinson said. "We went in a lot of different directions, and we had visions of doing the things we wanted to do, but as a system, we weren't sure how we could get there."

Ishmael chose DNA Mathematics, which focuses on enhancing the knowledge, skills, and effectiveness of mathematics teachers so students can receive the best education possible.

"I felt it was important for our teachers to understand and know the instructional moves that went with the practice," Robinson said. "You can tell them about the practice all you want, but if they don't know when to do what, they're less likely to try the practice."

► IMPLEMENTATION

Saint Paul Public Schools worked closely with Solution Tree expert Juli K. Dixon, a co-founder of DNA Mathematics. The staff collaborated with Juli to build a solid foundation of content knowledge for teaching mathematics, then extend that knowledge to students through the implementation of the TQE Process.

This structured solution—which combines Tasks, Questioning, and Evidence to drive efficacy in student learning—empowered Saint Paul's mathematics educators to identify learning goals, facilitate productive questions, and employ evidence-based formative assessment to deliver optimum instruction.

"The doubters that we have that are new will just stop everything in their tracks. You have to try it. ... Go slow, but once you get people who have experienced DNA Mathematics, and the progression of how things are done, it is fantastic, and you will get believers out of the teachers and out of the students who believe they can now learn mathematics."—Thanh Tran, Saint Paul Public Schools elementary district math specialist.

The DNA Mathematics model and TQE Process fostered dynamic conversations about learning among all students—strengthening both literacy and mathematics skills at the same time.

"It was wonderful to see that much dialogue; children speaking, explaining, talking—and pulling out more and more math language," said Peggy Nayar, a pre-algebra teacher at Farnsworth Aerospace preK–8. "Teachers were seeing how much students are capable of talking. I'm a big believer that they need to be talking about mathematics."

“TQE was a radical difference that convinced me this is the right way to be teaching our children, especially the ones who are most marginalized in our learning communities.”

—Stacy Waskosky, second-grade mathematics teacher, Capitol Hill Gifted and Talented Magnet School

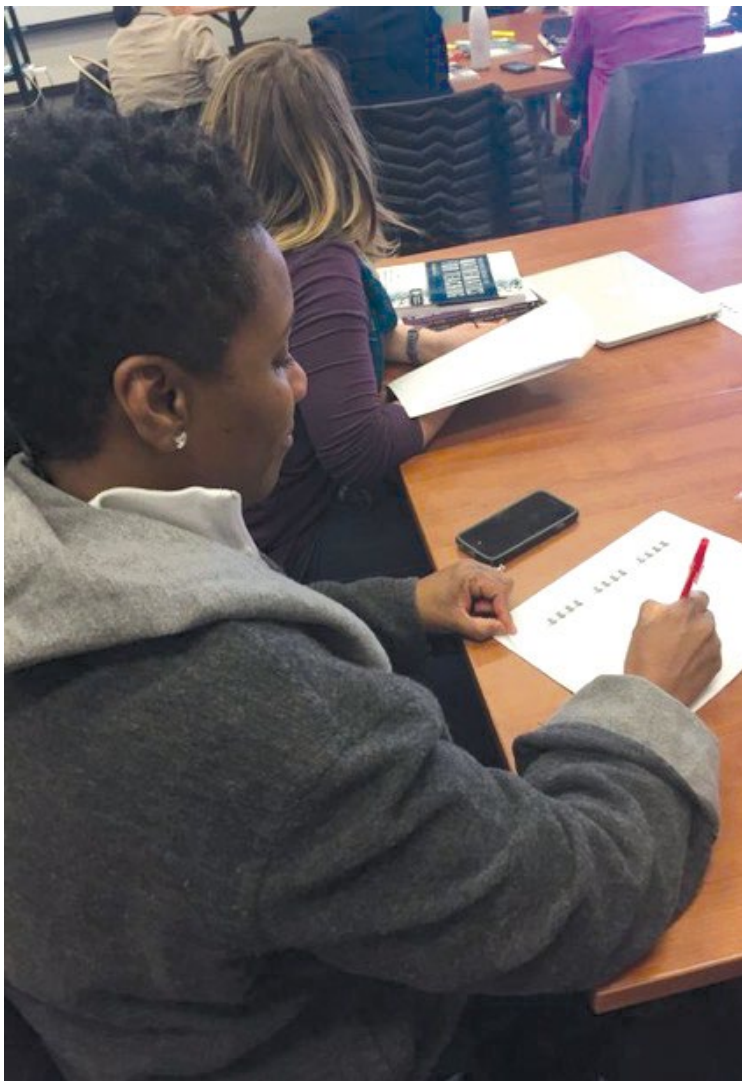
► RESULTS

In the three years since beginning its DNA Mathematics journey, Saint Paul Public Schools has succeeded in creating a mathematics culture that advances the learning of every student. What once was a procedural and disjointed mathematics department has since transformed into a responsive, engaging team that anticipates every student being able to learn at high levels.

“We look at the data and we see huge increases in growth,” said Patricia Busta, an elementary mathematics coach for the district. “The fun part is, by year two, we had so many teachers calling, emailing, and texting with pride in their change in data.”

It was a leap of faith, but one that Saint Paul’s mathematics teachers decisively say has changed their classrooms for the better.

“You’re welcome in this environment,” Nayar said. “The text and the information and the presentations and the approaches will blend nicely with techniques and strategies you already use. When you marry all that together, I believe it’s an asset for all the learners in the room.”



Saint Paul Public Schools educators work collaboratively during a professional development session.



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► Learn more about how DNA Mathematics can benefit your school at SolutionTree.com/DNA-Mathematics or call 800.733.6786 ext. 440